

## Step switches, TM, 10 A, center mounting, Contacts: 4, with black thumb grip and front plate

Part no. **TM-2-8231/EZ****000700**

EL Number

**1456167**

(Norway)

<b>General specifications</b>	
Product name	Eaton Moeller® series TM Step switch
Part no.	TM-2-8231/EZ
EAN	4015080007005
Product Length/Depth	87 millimetre
Product height	30 millimetre
Product width	30 millimetre
Product weight	0.044 kilogram
Certifications	IEC/EN 60947-5-1 UL UL Category Control No.: NLRV CSA-C22.2 No. 94 CSA-C22.2 No. 14-05 UL 508 IEC/EN 60947-3 CE CSA Certified by UL for use in Canada VDE 0660 IEC/EN 60947 UL File No.: E36332 UL report applies to both US and Canada
Product Tradename	TM
Product Type	Step switch
Product Sub Type	None
<b>Features &amp; Functions</b>	
Fitted with:	Black thumb grip and front plate
Inscription	1-4
Number of poles	Single-pole
<b>General information</b>	
Degree of protection	IP65
Degree of protection (front side)	IP65 NEMA 12
Lifespan, mechanical	1,000,000 Operations
Mounting method	Center mounting
Mounting position	As required
Number of contact units	2
Operating frequency	1200 Operations/h
Overvoltage category	III
Pollution degree	3
Product category	Control switches
Rated impulse withstand voltage (Uimp)	4000 V AC
Suitable for	Front mounting
Switching angle	60 °
Type	Step switch
<b>Climatic environmental conditions</b>	
Ambient operating temperature - min	-25 °C
Ambient operating temperature - max	50 °C
Climatic proofing	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
<b>Terminal capacities</b>	
Terminal capacity (flexible with ferrule)	1 x 1.0 mm <sup>2</sup> , ferrules to DIN 46228 2 x 1.0 mm <sup>2</sup> , ferrules to DIN 46228

Terminal capacity (flexible)		2 x 1.5 mm <sup>2</sup> 1 x 1.5 mm <sup>2</sup>
Terminal capacity (solid/flexible with ferrule AWG)		14
Terminal capacity (solid/stranded)		2 x 1,5 mm <sup>2</sup> 1 x 1.5 mm <sup>2</sup>
Screw size		M2.5, Terminal screw
Tightening torque		3.5 lb-in, Screw terminals 0.4 Nm, Screw terminals
<b>Electrical rating</b>		
Rated operating voltage (Ue) at AC - max		500 V
Rated operational current (Ie) at AC-21, 440 V		10 A
Rated operational power at AC-23A, 400 V, 50 Hz		3 kW
Rated uninterrupted current (Iu)		10 A
Uninterrupted current		Rated uninterrupted current Iu is specified for max. cross-section.
<b>Short-circuit rating</b>		
Short-circuit protection rating		10 A gG/gL, Fuse, Contacts
<b>Switching capacity</b>		
Switching capacity (main contacts, general use)		10 A, Rated uninterrupted current max. (UL/CSA)
Switching capacity (auxiliary contacts, general use)		10A, IU, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)		A300 (UL/CSA)
<b>Motor rating</b>		
Assigned motor power at 115/120 V, 60 Hz, 1-phase		0.33 HP
Assigned motor power at 115/120 V, 60 Hz, 3-phase		0.75 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase		0.75 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase		1 HP
Assigned motor power at 277 V, 60 Hz, 1-phase		0.75 HP
<b>Contacts</b>		
Control circuit reliability		1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA)
Number of contacts		4
<b>Actuator</b>		
Actuator function		Maintained Without 0 (Off) position
Actuator type		Toggle
Number of steps		4 (60°)
Number of switch positions		4
<b>Design verification</b>		
Equipment heat dissipation, current-dependent Pvid		0 W
Heat dissipation capacity P <sub>diss</sub>		0 W
Heat dissipation per pole, current-dependent Pvid		0.15 W
Rated operational current for specified heat dissipation (I <sub>n</sub> )		10 A
Static heat dissipation, non-current-dependent P <sub>vs</sub>		0 W
10.2.2 Corrosion resistance		Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures		Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat		Meets the product standard's requirements.
10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects		Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation		UV resistance only in connection with protective shield.
10.2.5 Lifting		Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact		Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions		Meets the product standard's requirements.
10.3 Degree of protection of assemblies		Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances		Meets the product standard's requirements.
10.5 Protection against electric shock		Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components		Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections		Is the panel builder's responsibility.
10.8 Connections for external conductors		Is the panel builder's responsibility.

10.9.2 Power-frequency electric strength		Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage		Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material		Is the panel builder's responsibility.
10.10 Temperature rise		The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 9.0

Low-voltage industrial components (EG000017) / Control switch (EC002611)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Control switch (ecl@ss13-27-37-14-14 [ACN998016])		
Type of switch		Level switch
Number of poles		1
Max. rated operation voltage Ue AC	V	500
Rated permanent current Iu	A	10
Number of switch positions		4
With zero (off) position		No
With retraction in 0-position		No
Device construction		Built-in device
Width in number of modular spacings		0
Suitable for floor mounting		No
Suitable for front mounting		Yes
Suitable for distribution board installation		No
Suitable for intermediate mounting		No
Complete device in housing		No
Type of control element		Toggle
Front shield size		30x30 mm
Degree of protection (IP), front side		IP65
Degree of protection (NEMA), front side		12